IN THE CLAIMS:

Please amend Claims 1, 32 and 63 as shown below. The claims, as pending in the subject application, now read as follows:

1. (Currently Amended) A method of orientating a space curve defined by digital data corresponding to an image, the method comprising the steps of:

receiving a predefined [[the]] space curve, wherein the space curve has two endpoints and is adapted to have one of two directions, either a forward direction proceeding along the space curve from an initial endpoint to a terminating endpoint or a reverse direction proceeding along the space curve from the terminating endpoint to the initial endpoint;

selecting a desired direction to act as a reference for orientating the space curve received in said receiving step;

generating a first vector having a direction which is the same as the selected desired direction;

generating at least one second vector, each second vector having a corresponding direction representative of and derived from a corresponding characteristic of the space curve;

comparing the first and second vectors;

determining, based on a result of said comparing step, a direction of the space curve, wherein the determined direction of the space curve is one of two directions, either the forward or the reverse direction, that is closest in direction to the selected desired direction; and

orientating the direction of the space curve to the determined direction.

2. (Previously Presented) A method as claimed in claim 1, wherein said step of generating at least one second vector comprises the sub-steps of:

determining the endpoints of the space curve; and

generating one second vector connecting both endpoints.

3. (Previously Presented) A method as claimed in claim 1, wherein said step of generating at least one second vector comprises the substeps of:

determining the endpoints of the space curve; and

generating two second vectors, each connecting both endpoints and having opposite directions.

4. (Previously Presented) A method as claimed in claim 3, wherein said step of comparing the first and second vectors comprises the sub-steps of:

determining a first angle between one of the second vectors and the first vector;

determining a second angle between the other one of the second vectors and the first vector; and

comparing the first angle with the second angle,

wherein if the first angle is less than the second angle then the determined direction of the space curve is in a first direction, and if the first angle is greater than the second angle then the determined direction of the space curve is in a second direction, opposite the first direction.

5. (Previously Presented) A method as claimed in claim 2, wherein said step of comparing the first and second vectors comprises the sub-steps of:

determining a first angle between the first vector and the second vector; and

comparing the first angle with a first threshold value,

wherein if the first angle is less than the first threshold value then the determined direction of the space curve is in a first direction, and if the first angle is greater than the first threshold value then the determined direction of the space curve is in a second direction, opposite the first direction.

6. (Previously Presented) A method as claimed in claim 5, wherein the first threshold value is 90°.

7. (Previously Presented) A method as claimed in claim 4, wherein the method further comprises the step of generating a vector orthogonal to the first vector.

8. (Previously Presented) A method as claimed in claim 5, wherein the method further comprises the step of generating a vector orthogonal to the first vector.

9. (Previously Presented) A method as claimed in claim 7 or 8, wherein the orthogonal vector is generated in a predetermined manner.

10. (Previously Presented) A method as claimed in claim 7 or 8, wherein the orthogonal vector is generated in accordance with a user selected direction.

11. (Previously Presented) A method as claimed in claim 7, wherein, if the first angle equals the second angle, said step of comparing the first and second vectors further comprises the sub-steps of:

determining a third angle between one of the second vectors and the orthogonal vector;

determining a fourth angle between the other one of the second vectors and the orthogonal vector; and

comparing the third angle with the fourth angle,

wherein if the third angle is less than the fourth angle then the determined direction of the space curve is in a third direction, and if the third angle is greater than the fourth angle then the determined direction of the space curve is in a fourth direction, opposite the third direction.

12. (Previously Presented) A method as claimed in claim 8, wherein if the first angle equals the first threshold value, said step of comparing the first and second vectors further comprises the sub-steps of:

determining a second angle between the second vector and the orthogonal vector; and

comparing the second angle with a second threshold value,

wherein if the second angle is less than the second threshold value then the determined direction of the space curve is in a third direction, and if the second angle is greater than the second threshold value then the determined direction of the space curve is in a fourth direction, opposite the third direction.

13. (Previously Presented) A method as claimed in claim 12, wherein the second threshold value is 90°.

14. (Previously Presented) A method as claimed in claim 1, wherein said step of generating at least one second vector comprises the substeps of:

determining endpoints of the space curve; and

generating, at each endpoint, a second vector tangent to the space curve.

15. (Previously Presented) A method as claimed in claim 14, wherein said step of comparing the first and second vectors comprises the sub-steps of:

determining a first angle between one of the second vectors and the first vector;

determining a second angle between the other one of the second vectors and the first vector; and

comparing the first angle with the second angle,

wherein if the first angle is less than the second angle then the determined direction of the space curve is in a first direction, and if the first angle is greater than the second angle then the determined direction of the space curve is in a second direction, opposite the first direction.

16. (Previously Presented) A method as claimed in claim 15, wherein said step of generating at least one second vector further comprises the sub-step of generating a third vector connecting both endpoints.

17. (Previously Presented) A method as claimed in claim 15, wherein said step of generating at least one second vector further comprises the sub-step of generating two third vectors, each connecting both endpoints and having opposite directions.

18. (Previously Presented) A method as claimed in claim 17, wherein said step of comparing the first and second vectors further comprises the sub-steps of:

determining a third angle between one of the third vectors and the first vector;

determining a fourth angle between the other one of the third vectors and the first vector; and

comparing the third angle with the fourth angle,

wherein if the third angle is less than the fourth angle then the determined direction of the space curve is in a third direction, and if the third angle is greater than the fourth angle then the determined direction of the space curve is in a fourth direction, opposite the third direction.

19. (Previously Presented) A method as claimed in claim 16, wherein said step of comparing the first and second vectors comprises the sub-steps of:

determining a third angle between the third vector and the first vector; and

comparing the third angle with a first threshold value,

wherein if the third angle is less than the first threshold value then the determined direction of the space curve is in a third direction, and if the third angle is greater than the first threshold value then the determined direction of the space curve is in a fourth direction, opposite the third direction.

20. (Previously Presented) A method as claimed in claim 19, wherein the first threshold value is 90°.

21. (Previously Presented) A method as claimed in claim 18, wherein said step of generating at least one second vector comprises the sub-step of generating a vector orthogonal to the first vector.

22. (Previously Presented) A method as claimed in claim 19, wherein said step of generating at least one second vector comprises the sub-step of generating a vector orthogonal to the first vector.

23. (Previously Presented) A method as claimed in claim 21 or 22, wherein the orthogonal vector is generated in a predetermined manner.

24. (Previously Presented) A method as claimed in claim 21 or 22, wherein the orthogonal vector is generated in accordance with a user selected direction.

25. (Previously Presented) A method as claimed in claim 21, wherein if the third angle equals the fourth angle, said step of comparing the first and second vectors further comprises the sub-steps of:

determining a fifth angle between the first one of the third vectors and the orthogonal vector;

determining a sixth angle between the other one of the third vectors and the orthogonal vector; and

comparing the fifth angle with the sixth angle,

wherein if the fifth angle is less than the sixth angle then the determined direction of the space curve is in a fifth direction, and if the fifth angle is greater than the sixth angle then the determined direction of the space curve is in a sixth direction, opposite the fifth direction.

26. (Previously Presented) A method as claimed in claim 22, wherein if the third angle equals the first threshold value, said step of comparing the first and second vectors comprises the sub-steps of:

determining a fourth angle between the third vector and the orthogonal vector; and

comparing the fourth angle with a second threshold value,

wherein if the fourth angle is less than the second threshold value then the determined direction of the space curve is in a fourth direction, and if the fourth angle is greater than the second threshold value then the determined direction of the space curve is in a fifth direction, opposite the fourth direction.

27. (Previously Presented) A method as claimed in claim 26, wherein the second threshold value is 90°.

28. (Previously Presented) A method as claimed in claim 1, wherein the method comprises the step of providing further space curves and performing said step of generating at

least one second vector, said step of comparing the first and second vectors, and said step of orientating the direction of the space curve on each space curve.

29. (Previously Presented) A method as claimed in claim 1, wherein the method comprises a plurality of techniques for generating the second vectors and a step for selecting one of the techniques in response to user input.

30. to 31. (Canceled)

32. (Currently Amended) An apparatus for orientating a space curve defined by digital data corresponding to an image, the apparatus comprising:

selection means for selecting a desired direction to act as a reference for orientating the space curve;

first generation means for generating a first vector having a direction which is the same as the selected desired direction;

means for receiving a predefined [[the]] space curve, wherein the space curve has two endpoints and is adapted to have one of two directions, either a forward direction proceeding along the space curve from an initial endpoint to a terminating endpoint or a reverse direction proceeding along the space curve from the terminating endpoint to the initial endpoint;

second generation means for generating at least one second vector, each second vector having a corresponding direction representative of and derived from a corresponding characteristic of the space curve;

first comparison means for comparing the first and second vectors;

determining means for determining, based on an output of said first comparison means, a direction of the space curve, wherein the determined direction of the space curve is one of two directions, either the forward or the reverse direction, that is closest in direction to the selected desired direction; and

orientation means for orientating the direction of the space curve to the determined direction.

33. (Previously Presented) An apparatus claimed in claim 32, wherein said second generation means comprises:

means for determining the endpoints of the space curve; and

means for generating a second vector connecting both endpoints.

34. (Previously Presented) An apparatus as claimed in claim 32, wherein said second generating means comprises:

means for determining the endpoints of the space curve; and

means for generating two second vectors, each connecting both endpoints and having opposite directions.

35. (Previously Presented) An apparatus as claimed in claim 34, wherein said first comparison means comprises:

means for determining a first angle between one of the second vectors and the first vector;

means for determining a second angle between the other one of the second vectors and the first vector;

means for comparing the first angle with the second angle,

wherein if the first angle is less than the second angle then the determined direction of the space curve is in a first direction, and if the first angle is greater than the second angle then the determined direction of the space curve is in a second direction, opposite the first direction.

36. (Previously Presented) An apparatus as claimed in claim 33, wherein said first comparison means comprises:

means for determining a first angle between the first vector and the second vector; and

means for comparing the first angle with a first threshold value,

wherein if the first angle is less than the first threshold value then the determined direction of the space curve is in a first direction, and if the first angle is greater than the first threshold value then the determined direction of the space curve is in a second direction, opposite the first direction.

37. (Previously Presented) An apparatus as claimed in claim 36, wherein the first threshold value is 90°.

38. (Previously Presented) An apparatus as claimed in claim 35, wherein the apparatus further comprises means for generating a vector orthogonal to the first vector.

39. (Previously Presented) An apparatus as claimed in claim 36, wherein the apparatus further comprises means for generating a vector orthogonal to the first vector.

40. (Previously Presented) An apparatus as claimed in claim 38 or 39, wherein the orthogonal vector is generated in a predetermined manner.

41. (Previously Presented) An apparatus as claimed in claim 38 or 39, wherein the orthogonal vector is generated in accordance with a user selected direction.

42. (Previously Presented) An apparatus as claimed in claim 38, wherein the first comparison means further comprises:

means for determining a third angle between one of the second vectors and the orthogonal vector;

means for determining a fourth angle between the other one of the second vectors and the orthogonal vector; and

means for comparing the third angle with the fourth angle,

wherein if the third angle is less than the fourth angle then the determined direction of the space curve is in a third direction, and if the third angle is greater than the fourth angle then the determined direction of the space curve is in a fourth direction, opposite the third direction.

43. (Previously Presented) An apparatus as claimed in claim 39, wherein the first comparison means further comprises:

means for determining a second angle between the second vector and the orthogonal vector; and

means for comparing the second angle with a second threshold value,

wherein if the second angle is less than the second threshold value then the determined direction of the space curve is in a third direction, and if the second angle is greater than the second threshold value then the determined direction of the space curve is in a fourth direction, opposite the third direction.

44. (Previously Presented) An apparatus as claimed in claim 43, wherein the second threshold value is 90°.

45. (Previously Presented) An apparatus as claimed in claim 32, wherein said second generation means comprises:

means for determining endpoints of the curve; and

means for generating, at each endpoint, a second vector tangent to the curve.

46. (Previously Presented) An apparatus as claimed in claim 45, wherein said first comparison means comprises:

means for determining a first angle between one of the second vectors and the first vector;

means for determining a second angle between the other one of the second vectors and the first vector; and

means for comparing the first angle with the second angle,

wherein if the first angle is less than the second angle then the determined direction of the space curve is in a first direction, and if the first angle is greater than the second angle then the determined direction of the space curve is in a second direction, opposite the first direction.

47. (Previously Presented) An apparatus as claimed in claim 46, wherein said second generation means comprises means for generating a third vector connecting both endpoints.

48. (Previously Presented) An apparatus as claimed in claim 46, wherein said second generation means further comprises means for generating two third vectors, each connecting both endpoints and having opposite directions.

49. (Previously Presented) An apparatus as claimed in claim 48, wherein said first comparison means further comprises:

means for determining a third angle between one of the third vectors and the first vector;

means for determining a fourth angle between the other one of the third vectors and the first vector; and

means for comparing the third angle with the fourth angle,

wherein if the third angle is less than the fourth angle then the determined direction of the space curve is in a third direction, and if the third angle is greater than the

fourth angle then the determined direction of the space curve is in a fourth direction, opposite the third direction.

50. (Previously Presented) An apparatus as claimed in claim 47, wherein said first comparison means comprises:

means for determining a third angle between the third vector and the first vector; and

means for comparing the third angle with a first threshold value,

wherein if the third angle is less than the first threshold value then the determined direction of the space curve is in a third direction, and if the third angle is greater than the first threshold value then the determined direction of the space curve is in a fourth direction, opposite the third direction.

51. (Previously Presented) An apparatus as claimed in claim 50, wherein the first threshold value is 90°.

52. (Previously Presented) An apparatus as claimed in claim 49, wherein said second generation means comprises means for generating a vector orthogonal to the first vector.

53. (Previously Presented) An apparatus as claimed in claim 50, wherein said second generation means comprises means for generating a vector orthogonal to the first vector.

54. (Previously Presented) An apparatus as claimed in claim 52 or 53, wherein the orthogonal vector is generated in a predetermined manner.

55. (Previously Presented) An apparatus as claimed in claim 52 or 53, wherein the orthogonal vector is generated in accordance with a user selected direction.

56. (Previously Presented) An apparatus as claimed in claim 52, wherein the first comparison means further comprises:

means for determining a fifth angle between the first one of the third vectors and the orthogonal vector;

means for determining a sixth angle between the other one of the third vectors and the orthogonal vector; and

means for comparing the fifth angle with the sixth angle,

wherein if the fifth angle is less than the sixth angle then the determined direction of the space curve is in a fifth direction, and if the fifth angle is greater than the sixth angle then the determined direction of the space curve is in a sixth direction, opposite the fifth direction.

57. (Previously Presented) An apparatus as claimed in claim 53, wherein the first comparison means further comprises:

means for determining a fourth angle between the third vector and the orthogonal vector; and

means for comparing the fourth angle with a second threshold value,

wherein if the fourth angle is less than the second threshold value then the determined direction of the space curve is in a fourth direction, and if the fourth angle is greater than the second threshold value then the determined direction of the space curve is in a fifth direction, opposite the fourth direction.

58. (Previously Presented) An apparatus as claimed in claim 57, wherein the second threshold value is 90°.

59. (Previously Presented) An apparatus as claimed in claim 32, wherein the apparatus comprises means for providing further space curves and performing the operations of said second generation means, first comparison means and orientation means on each space curve.

60. (Previously Presented) An apparatus as claimed in claim 32, wherein the apparatus comprises a plurality of techniques for generating the second vectors and means for selecting one of the techniques in response to user input.

61. to 62. (Canceled)

63. (Currently Amended) A computer program product comprising a computer readable medium having a computer program for controlling the operation of a data processing apparatus on which the computer program executes to perform a method for

orientating a space curve defined by digital data corresponding to an image, the computer program product comprising:

selection means for selecting a desired direction to act as a reference for orientating the space curve;

first generation means for generating a first vector having a direction which is the same as the selected desired direction;

means for receiving a predefined [[the]] space curve, wherein the space curve has two endpoints and is adapted to have one of two directions, either a forward direction proceeding along the space curve from an initial endpoint to a terminating endpoint or a reverse direction proceeding along the space curve from the terminating endpoint to the initial endpoint;

second generation means for generating at least one second vector, each second vector having a corresponding direction representative of and derived from a corresponding characteristic of the space curve;

first comparison means for comparing the first and second vectors so as to determine a direction of the space curve, wherein the determined direction of the space curve is one of two directions, either the forward or the reverse direction, that is closest in direction to the selected desired direction; and

orientation means for orientating the direction of the space curve to the determined direction.

64. (Previously Presented) A computer program product claimed in claim 63, wherein said second generation means comprises:

means for determining the endpoints of the space curve; and

means for generating one second vector connecting both endpoints.

65. (Previously Presented) A computer program product as claimed in claim 63, wherein said second generating means comprises:

means for determining the endpoints of the space curve; and

means for generating two second vectors, each connecting both endpoints and having opposite directions.

66. (Previously Presented) A computer program product as claimed in claim 65, wherein said first comparison means comprises:

means for determining a first angle between one of the second vectors and the first vector;

means for determining a second angle between the other one of the second vectors and the first vector; and

means for comparing the first angle with the second angle,

wherein if the first angle is less than the second angle then the determined direction of the space curve is in a first direction, and if the first angle is greater than the second angle then the determined direction of the space curve is in a second direction, opposite the first direction.

67. (Previously Presented) A computer program product as claimed in claim 64, wherein said first comparison means comprises:

means for determining a first angle between the first vector and the second vector; and

means for comparing the first angle with a first threshold value,

wherein if the first angle is less than the first threshold value then the determined direction of the space curve is in a first direction, and if the first angle is greater than the first threshold value then the determined direction of the space curve is in a second direction, opposite the first direction.

68. (Previously Presented) A computer program product as claimed in claim 67, wherein the first threshold value is 90°.

69. (Previously Presented) A computer program product as claimed in claim 66, wherein the computer program product further comprises means for generating a vector orthogonal to the first vector.

70. (Previously Presented) A computer program product as claimed in claim 67, wherein the computer program product further comprises means for generating a vector orthogonal to the first vector.

71. (Previously Presented) A computer program product as claimed in claim 69 or 70, wherein the orthogonal vector is generated in a predetermined manner.

72. (Previously Presented) A computer program product as claimed in claim 69 or 70, wherein the orthogonal vector is generated in accordance with a user selected direction.

73. (Previously Presented) A computer program product as claimed in claim 69, wherein said first comparison means further comprises:

means for determining a third angle between one of the second vectors and the orthogonal vector;

means for determining a fourth angle between the other one of the second vectors and the orthogonal vector; and

means for comparing the third angle with the fourth angle,

wherein if the third angle is less than the fourth angle then the determined direction of the space curve is in a third direction, and if the third angle is greater than the fourth angle then the determined direction of the space curve is in a fourth direction, opposite the third direction.

74. (Previously Presented) A computer program product as claimed in claim 70, wherein said first comparison means further comprises:

means for determining a second angle between the second vector and the orthogonal vector; and

means for comparing the second angle with a second threshold value,

wherein if the second angle is less than the second threshold value then the determined direction of the space curve is in a third direction, and if the second angle is

greater than the second threshold value then the determined direction of the space curve is in a fourth direction, opposite the third direction.

75. (Previously Presented) A computer program product as claimed in claim 74, wherein the second threshold value is 90°.

76. (Previously Presented) A computer program product as claimed in claim 63, wherein said second generation means comprises:

means for determining endpoints of the space curve; and

means for generating, at each endpoint, a second vector tangent to the space curve.

77. (Previously Presented) A computer program product as claimed in claim 76, wherein said first comparison means comprises:

means for determining a first angle between one of the second vectors and the first vector;

means for determining a second angle between the other one of the second vectors and the first vector; and

means for comparing the first angle with the second angle,

wherein if the first angle is less than the second angle then the determined direction of the space curve is in a first direction, and if the first angle is greater than the second angle then the determined direction of the space curve is in a second direction, opposite the first direction.

78. (Previously Presented) A computer program product as claimed in claim 77, wherein said second generation means comprises means for generating one third vector connecting both endpoints.

79. (Previously Presented) A computer program product as claimed in claim 77, wherein said second generation means further comprises means for generating two third vectors, each connecting both endpoints and having opposite directions.

80. (Previously Presented) A computer program product as claimed in claim 79, wherein said first comparison means further comprises:

means for determining a third angle between one of the third vectors and the first vector;

means for determining a fourth angle between the other one of the third vectors and the first vector; and

means for comparing the third angle with the fourth angle,

wherein if the third angle is less than the fourth angle then the determined direction of the space curve is in a third direction, and if the third angle is greater than the fourth angle then the determined direction of the space curve is in a fourth direction, opposite the third direction.

81. (Previously Presented) A computer program product as claimed in claim 78, wherein said first comparison means comprises:

means for determining a third angle between the third vector and the first vector; and

means for comparing the third angle with a first threshold value,

wherein if the third angle is less than the first threshold value then the determined direction of the space curve is in a third direction, and if the third angle is greater than the first threshold value then the determined direction of the space curve is in a fourth direction, opposite the third direction.

82. (Previously Presented) A computer program product as claimed in claim 81, wherein the first threshold value is 90°.

83. (Previously Presented) A computer program product as claimed in claim 80, wherein said second generation means comprises means for generating a vector orthogonal to the first vector.

84. (Previously Presented) A computer program product as claimed in claim 81, wherein said second generation means comprises means for generating a vector orthogonal to the first vector.

85. (Previously Presented) A computer program product as claimed in claim 83 or 84, wherein the orthogonal vector is generated in a predetermined manner.

86. (Previously Presented) A computer program product as claimed in claim 83 or 84, wherein the orthogonal vector is generated in accordance with a user selected direction.

87. (Previously Presented) A computer program product as claimed in claim 83, wherein said first comparison means further comprises:

means for determining a fifth angle between the first one of the third vectors and the orthogonal vector;

means for determining a sixth angle between the other one of the third vectors and the orthogonal vector; and

means for comparing the fifth angle with the sixth angle,

wherein if the fifth angle is less than the sixth angle then the determined direction of the space curve is in a fifth direction, and if the fifth angle is greater than the sixth angle then the determined direction of the space curve is in a sixth direction, opposite the fifth direction.

88. (Previously Presented) A computer program product as claimed in claim 84, wherein said first comparison means further comprises:

means for determining a fourth angle between the third vector and the orthogonal vector; and

means for comparing the fourth angle with a second threshold value,

wherein if the fourth angle is less than the second threshold value then the determined direction of the space curve is in a fourth direction, and if the fourth angle is

greater than the second threshold value then the determined direction of the space curve is in a fifth direction, opposite the fourth direction.

89. (Previously Presented) A computer program product as claimed in claim 88, wherein the second threshold value is 90°.

90. (Previously Presented) A computer program product as claimed in claim 63, wherein the computer program product comprises means for providing further space curves and performing the operations of said second generation means, first comparison means and orientation means on each space curve.

91. (Previously Presented) A computer program product as claimed in claim 63, wherein the computer program product comprises a plurality of techniques for generating the second vectors and means for selecting one of the techniques in response to user input.

92. to 93. (Canceled)